Trend Study 16C-10-97

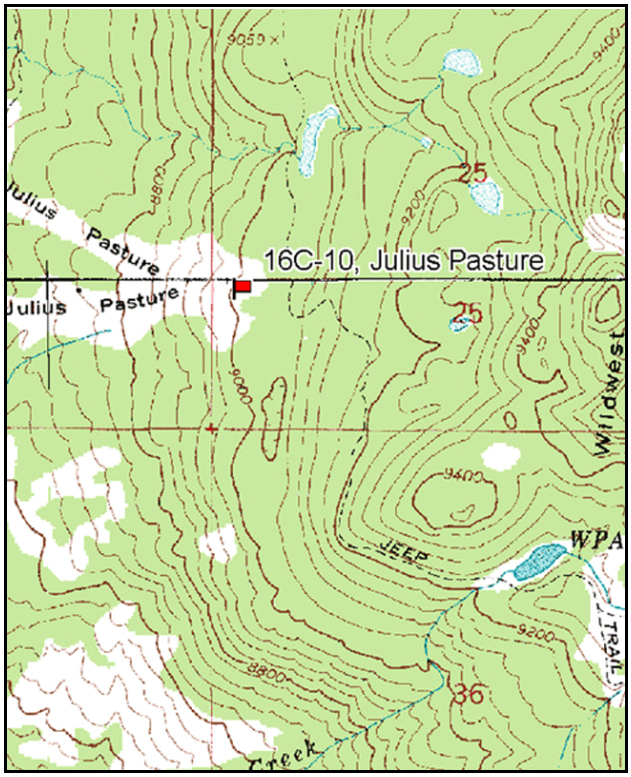
Study site name: Julius Pasture . Vegetation type: Dry Meadow .

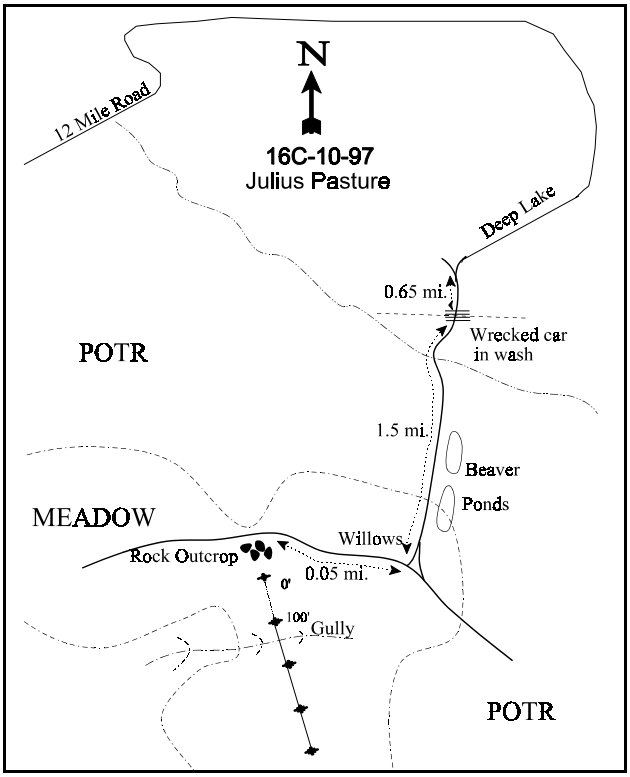
Compass bearing: frequency baseline 174 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the town of Mayfield, go east up Twelve Mile Canyon for about 15 miles to the Cowboy Camp/Deep Lake Road. This jeep trail no longer exists. Must continue on Twelve Mile Road around to the east of the site. It may require a map and GPS to find this site. At this old fork, go 0.65 miles to a pole fence and a cattle guard. Continue on for another 1.5 miles to another fork in the road. Turn right again and go 0.05 miles to a rock outcropping on the south side of the road. From the edge of the road, walk 13 paces (through the rock outcropping) to the 0-foot baseline stake which is marked by browse tag #9046.





Map Name: Woods Lake

Township 19S , Range 3E , Section 25

Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4330511 N 453759 E

DISCUSSION

Julius Pasture - Trend Study No. 16C-10

***This site was not read in 2002 due to access problems and will be reevaluated in 2007. The site narrative and data tables have been retained from the 1997 report.

The Julius Pasture trend study was established on the mountain above Mayfield. The site is in a meadow surrounded by mature aspen stands. The topography of the site slopes gently to the west at an elevation of 8,700 feet. Species composition is fairly consistent over the site. Elk are believed to use this area of the Twelve Mile drainage mainly in spring. The site is on Forest Service land and is within a cattle allotment. The study was initially established in the rested pasture of a rotation, however recent trespass was evident at that time. In 1997, the pellet group transect associated with the trend transect indicated that use was as follows: 1 deer day use/acre, 3 elk days use/acre, and 35 cow days use/acre.

The soil is deep and dark with a fine loam texture. Soil textural analysis shows it to be a clay soil with a pH of 6.2, giving it a slightly acidic soil reaction. Effective rooting depth is almost two feet with a moderately cool soil temperature of 46°F at 20 inches in depth. Activity by burrowing rodents is common. Nearby beaver ponds and a spring supply abundant water. Grasses provide only 22% of the herbaceous cover while the forbs provide the remainder of the cover. Tarweed makes up 44% of the total herbaceous cover and is a major problem on this site from past abusive grazing practices. Percent bare ground decreased from 32% to 27% between 1989 and 1997. Herbaceous cover is uniform with no large bare areas, so sheet erosion is not obvious. An active gully runs through the middle of the meadow as evidence of earlier problems. The heavy soil is subject to slumping as there are landslides adjacent to the site.

The aspens surrounding the meadow are mostly mature trees, although within the sampling belts, most were classified as young. Other browse observed near the site include mountain big sagebrush, snowberry, and serviceberry.

Herbaceous vegetation is the key component on this spring and summer range site. Grass abundance is moderate, contributing 22% of the herbaceous cover. The most common species is the sod-forming Kentucky bluegrass which makes up 50% of the grass cover. Kentucky bluegrass is an increaser species with moderate to heavy livestock use. Two productive forage species, slender wheatgrass and mountain brome, are also fairly common. Grass vigor is satisfactory, yet there was a noticeable decline in sum of nested frequency for the grasses. The majority of the loss was to one species, Kentucky bluegrass.

Forbs are an important forage resource for big game. On this site they provide 78% of the herbaceous understory cover, although 56% of the forb cover is provided by tarweed, a weedy undesirable. The most numerous forbs are weedy increasers and together they contribute 82% of the forb cover. None are especially preferred forage species. Mulesears wyethia, a species that begins growth early in the spring and provides important early spring forage for elk, was not found within the transect itself, although it is abundant in other parts of the meadow. It is generally considered an increaser with cattle grazing as it is relatively unpalatable, especially as it dries later in the grazing season.

1989 APPARENT TREND ASSESSMENT

The lack of comparable baseline data and study sites makes it difficult to assess trend on this high elevation meadow. Further study is warranted. Changes in species composition would provide definite indicators of trend direction. Livestock trespass should be controlled. The abundance of tarweed and lack of prime forb species are downward trend indicators. Unless the adjacent slumping activity expands, soils on this site appear to be stable.

1997 TREND ASSESSMENT

Trend for soil is considered stable. Percent bare soil has declined from 32% to 27%. Almost all of the vegetative cover comes from herbaceous species which provide good soil protection from high intensity summer storms. Because of the elevation, the browse component is not of particular importance as it is a spring-summer elk range. The herbaceous understory is critical for this area, unfortunately the composition is dominated by weedy increasers. Sum of nested frequency for grasses has shown a noticeable decrease since 1989. The forbs have also shown a decrease, more importantly, the majority are made up of weedy species. Tarweed is one that shows a significant increase since 1989. By itself, it contributes 56% of the forb cover.

TREND ASSESSMENT
soil - stable (3)
browse - not present and not critical (n/a)
herbaceous understory - down (1)

HERBACEOUS TRENDS --
Herd unit 16C, Study no: 10

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %
		'89	'97	'89	'97	'97
G	Agropyron trachycaulum	146	156	62	59	3.15
G	Bromus carinatus	$_{b}$93	$_{a}$28	36	12	.73
G	Carex spp.	15	13	5	5	.34
G	Dactylis glomerata	19	7	10	4	.24
G	Phleum pratense	$_{a}$5	$_{b}$24	3	13	.97
G	Poa pratensis	$_{b}$285	$_{a}$193	82	64	7.26
G	Stipa columbiana	-	4	-	2	.18
G	Stipa lettermani	41	50	15	19	1.61
Total for Annual Grasses		0	0	0	0	0
Total for Perennial Grasses		604	475	213	178	14.49
Total for Grasses		604	475	213	178	14.49
F	Achillea millefolium	$_{b}$213	$_{a}$141	74	59	3.75
F	Agoseris glauca	14	26	8	13	.14
F	Allium spp.	3	7	2	2	.18
F	Arabis spp.	$_{b}$81	$_{a}$11	33	7	.06
F	Aster spp.	$_{a}$69	$_{b}$112	25	41	4.53
F	Cirsium spp.	$_{a}$29	$_{b}$72	13	36	2.49
F	Collomia linearis (a)	-	12	-	4	.19
F	Cynoglossum officinale	1	-	1	-	-
F	Epilobium brachycarpum (a)	-	21	-	7	.06
F	Fragaria virginiana	$_{b}$27	$_{a}$-	12	-	-
F	Madia glomerata (a)	$_{a}$218	$_{b}$330	72	91	29.52
F	Microsteris gracilis (a)	-	7	-	5	.02
F	Polygonum douglasii (a)	-	155	-	56	4.08
F	Potentilla spp.	$_{a}$-	$_{b}$22	-	8	.90
F	Rudbeckia occidentalis	26	18	12	7	1.16

Type	Species	Nested Frequency '89	Nested Frequency '97	Quadrat Frequency '89	Quadrat Frequency '97	Average Cover % '97
F	Taraxacum officinale	$_{b}$159	$_{a}$94	63	44	2.44
F	Tragopogon dubius	1	7	1	4	.07
F	Trifolium spp.	$_{b}$208	$_{a}$66	67	21	2.71
F	Vicia americana	$_{a}$7	$_{b}$33	3	15	.54
F	Viola spp.	7	3	3	1	.00
Total for Annual Forbs		218	525	72	163	33.88
Total for Perennial Forbs		845	612	317	258	19.00
Total for Forbs		1063	1137	389	421	52.88

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 16C, Study no: 10

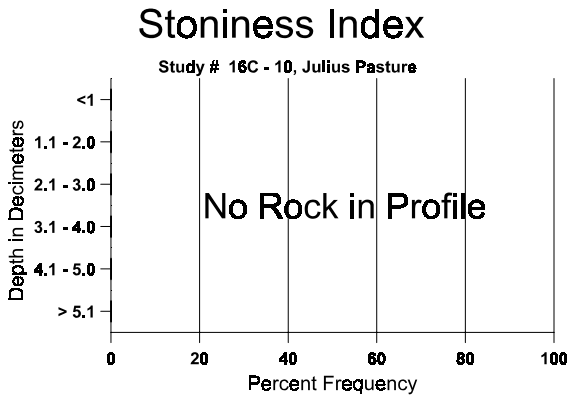
Type	Species	Strip Frequency '97	Average Cover % '97
B	Populus tremuloides	10	-
Total for Browse		10	0

BASIC COVER --
Herd unit 16C, Study no: 10

Cover Type	Nested Frequency '97	Average Cover % '89	Average Cover % '97
Vegetation	393	26.75	57.89
Rock	8	.25	.19
Pavement	17	0	.03
Litter	374	40.50	26.61
Cryptogams	21	.25	1.92
Bare Ground	308	32.25	26.81

SOIL ANALYSIS DATA --
Herd Unit 16C, Study no: 10, Julius Pasture

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
21.7	46.0 (17.7)	6.2	29.3	25.2	45.6	3.1	10.1	137.6	.5



PELLET GROUP FREQUENCY --
Herd unit 16C, Study no: 10

Type	Quadrat Frequency '97	Pellet Transect	
		Pellet Groups per Acre '97	Days Use per Acre (ha) '97
Elk	3	44	3 (8)
Deer	3	17	1 (3)
Cattle	15	418	35 (86)

BROWSE CHARACTERISTICS --
Herd unit 16C, Study no: 10

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Populus tremuloides																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	11	9	-	-	-	-	-	-	-	20	-	-	-	400			20
D	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'89	00%	00%	00%
'97	43%	00%	05%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	0%
	'97	420		5%